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Quality and Stability Evaluation of Chicken Meat Treated with Gamma Irradiation and Turmeric Powder

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The safety of chicken meat increased by treatment of gamma radiation. The free radicals produced due to radiation in food products. To overcome this issue, some source of antioxidants used along with radiation. Turmeric powder has the ability to work as antioxidant as well as antimicrobial. The study was carried out to evaluate the impact of gamma irradiation and turmeric powder (TP) on microbial quality, physicochemical quality, stability and antioxidant status of chicken meat. There were 2 doses (1 kGy and 2 kGy) of gamma irradiation was used alone and with combination of 3% turmeric powder along with control (0kGy). Aerobic and vacuum packaging were used for the storage of chicken meat with interval of 0, 7 and 14 days at 4°C. The microbiological results showed that the level of contamination was in the decreasing order as the dose of gamma irradiation increases both for total bacteria and coliforms, whereas no contamination was found in group treated with 2 kGy+TP both for aerobic and vacuum packaging. The peroxide value (POV), thiobarbituric acid reactive substances (TBARS) and total volatile basic nitrogen (TVBN) differed significantly on chicken meat with different groups. Higher POV and TBARS were found in chicken meat treated with 2 kGy under aerobic packaging after 14 days of storage and TVBN was higher in control at day 14 of storage under aerobic packaging whereas minimum POV, TBARS and TVBN were found in 0kGy+TP at day 0 under vacuum packaging. The results showed that different sensory attributes were evaluated by the panel of judges and higher score for all the sensory attributes like appearance, taste, texture, flavor and overall acceptability was found in 2 kGy. It is concluded that the chicken meat treated with 2 kGy+TP was considered better for microbial and physicochemical quality, antioxidant activity as well as sensorial properties of chicken meat.

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